OSKAR VON MILLER FORUM

Press Release

Success and Failure in Engineering - A Paradoxical Relationship

A lecture by Henry Petroski, Duke University, USA on 7 May 2015 at 6:30 pm at the Oskar von Miller Forum

Engineering is about making and doing things that have not been done before. To be successful, it is essential that engineers properly anticipate how things can fail, and design accordingly. Case studies of past failures thus provide invaluable information for the design of future successes. Conversely, designs based on the extrapolation of successful experience alone can lead to failure. This paradox will be explored in the context of historical case studies, including the design of ocean liners and also of suspension bridges, which from the 1850s through the 1930s evolved from John Roebling's enormous successes—culminating in the Brooklyn Bridge—to structures that oscillated in the wind and, in the case of the Tacoma Narrows Bridge, twisted itself apart and collapsed in 1940. Lessons learned from these cases and others can be generalized to apply across a broad spectrum of engineering structures and systems. They also help explain why failures continue to occur, even as technology advances.

About Henry Petroski

Henry Petroski is the Aleksandar S. Vesic Professor of Civil Engineering and a professor of history at Duke University. His current research activity focuses on the interrelationship between success and failure in design. He also has a strong interest in the nature of invention and in the history of technology. He has written on many aspects of engineering and technology, including design, success and failure, error and judgment, the history of engineering and technology, and the use of case studies in education and practice.

Henry Petroski has published, in addition to seventeen books and hundreds of articles in newspapers, magazines, and trade journals, over seventy-five refereed journal articles in such places as International Journal of Fracture, Engineering Fracture Mechanics, Journal of Applied Mechanics, Structural Safety, and Research in Engineering Design. His latest book "To Forgive Design: Understanding Failure" was published 2012. He writes the engineering column for American Scientist and a column on the profession for ASEE Prism. He also lectures widely and is interviewed frequently on radio and television.

In addition to having received many honors from Colleges and Universities, Henry Petroski is a Distinguished Member of the American Society of Civil Engineers, a fellow of the American Society of Mechanical Engineers and of the Institution of Engineers of Ireland, and is an elected member of the American Academy of Arts and Sciences, the American Philosophical Society, and the U.S. National Academy of Engineering.